Her beautiful park-like scenery, clothed with a velvet sward, and luxuriant with vegetation; her plains abounding in the richest soil now wild and tenantless and her lightly timbered woods and forest land, where the prolific virgin earth has never been disturbed, offer inducements to the settler unknown to other colonies, but now rendered unavailable for want of communication with populated districts.

In conclusion, I would add, that I have written this paper with the hope that more attention will be paid to the subject of Railways than has hitherto been done, and to describe the physical peculiarities existing in Victoria, probably unknown to a majority of the inhabitants of Melbourne.

Art. XV.—*Recent Discoveries in Natural History on the Lower Murray.* By William Blandowski, Esq.

WITH FOUR PLATES.

[Read before the Institute, 2nd September, 1857.]

[*Preliminary Report (No. IV.), Addressed to the Honorable the President of Public Lands and Works. By order, handed over to the Philosophical Institute.*]

Gentlemen,—The Honorable the President of the Board of Public Lands and Works has permitted me to lay before you the results of my investigations from the 1st of December, 1856, to August, 1857. It would be impossible for me to give you, at this present moment, a full account of all my observations; therefore, accept the brief outlines I now offer to you according to your request made to the Government.

In order that you may understand more fully the nature of the country which I have traversed, and the difficulties with which I had to contend, and what prospects I had on leaving Melbourne, I beg to read to you an extract of a single page from Surveyor White's Report, dated May 28th, 1849, who surveyed the district visited by me: which document was officially handed over to me before I undertook my late tour.

October 30, 1849.—"Again encamped at Messrs. Baird and Hodgkinson's, having been so fortunate as to obtain a small supply of water by digging in the sand at a certain spot—thus, having been eleven days without water, succeeded in saving the bullocks, with the exception of four, that died, and in bringing

them, the drays, and the remainder of the equipment out of the scrub.

November 6. — "Left party to ride through the scrub to the Murray, in the direction that the South Australian Boundary will take, taking two horses, intending to return the same way.

November 12.—"On the sixth day after leaving the camp, one of the horses was unable to proceed, not having had water for four days: compelled to leave him. Led on the other horse some distance, when he also gave in, and lay down; took the saddle, &c., off him, and lay down beside him, being scarcely able to stand, the day intolerably hot; bled the horse, and drank about half-a-pint of his blood, which was black, thick, and unhealthy-looking, and had the same bad smell as his breath. Got up; staggered on with the greatest difficulty; and reached the river in a state of extreme exhaustion in the afternoon."

From this extract you will perceive what were my hopes. Nothing, however, could make me in the least faint-hearted in the execution of my self-selected duties, and which, it appeared to me, would be of very great interest as regards the scientific investigation of a country hitherto considered a barren desert.

I. On the 2nd of December, 1856, I received orders from the Government to proceed to the junction of the Darling and Murray Rivers, for the purpose of making investigations on the natural history of that district, and also, with a view of collecting as many specimens as possible for the National Museum, and marking the distribution of animal life along my route.

I left Melbourne on the 6th December, 1856, with a very complete field equipment, consisting of five horses, two bullocks, two drays, four tents, a full set of tools and implements, and also a photographic apparatus. Four men were allowed me as my staff, and I had before long to regret that I had made a bad selection. The hardships, roughnesses, and privations of bush life were unknown to them, and I was soon deserted and left to myself, being, in consequence of this, exposed to innumerable delays and inconveniences, so that I had very great difficulty in fulfilling the duties which were expected of me.

It would, however, be unjust on my part were I not to acknowledge services, rendered to me by my assistant, Mr. G. Krefft, who, from the beginning to the end of my undertaking, most faithfully shared my lot. I may also mention a former faithful servant of mine, James Manson, who, when written to by me, joined my party at Mount Hope. He is one of those trustworthy Scotchmen who, in this respect, have raised the

fame of their nation. Krefft and Manson were all, that held out my cause from eighteen persons, successively engaged by me for the Government service.

On the 27th December I arrived at Kew's Swamp, between the Murray River and Mount Hope, about 170 miles N. by W. from Melbourne. On the 3rd of March, having re-organised my party, I started towards Lake Boga and the junction of the Murrumbidgee and the Murray Rivers, in a N.W. direction, about 130 miles distant from the former station. I was deceived in my expectations even here, and I therefore left my party, pushing forward alone to the junction of the Darling and Murray Rivers, where they arrived safe, but in a most deplorable condition, on the 8th of April. This being their ultimate destination, they formed a permanent encampment at a place called by the natives Mondellimin, about 400 miles from Melbourne, and opposite the junction of the Darling and Murray Rivers.

I myself started alone, for the purpose of examining the banks of the river westwards along the Murray, to the neighbourhood of Moorundee, and rejoined my party at Mondellimin, after having been absent three weeks, and ridden, in that short period, over 600 miles of country, crossing the river several times, which has a width of from 500 to 600 feet.

From Mondellimin I started again on a more extended excursion on the 27th of May, in a N.E. direction, up the Darling River towards Mount Murchison, a distance of 300 miles, and returned, after an absence of 24 days, to my encampment, having been obliged to swim the Murray twice, the Darling seven times, and several smaller streams. The distance traversed by me in that period was 700 miles.

On the 6th of August I left my camp in charge of Krefft and Manson, and proceeded to Melbourne, taking with me the valuable collection of specimens of Natural History, which had been accumulating in my tent during my stay at Mondellimin, to the extent of twenty-eight boxes and parcels, containing in all about 16,000 specimens, registered under 2,000 different numbers.

I went down the Murray River in the steamer "Albury" to Port Goolwa; from thence by the steamer "Corio" through the mouth of the Murray River to Adelaide; from thence to Melbourne by the "Havilah;" and arrived safe here, together with my collection, on the 18th August, having travelled a distance of about 1300 miles.

II. Having thus given you a brief outline of my proceedings,

and the country I have travelled, I now beg to lay before you the result of my labours, observing, in the meantime, that the mechanical part—viz., that of preserving the specimens—was done by my white laborers alone, whilst the specimens were obtained by the assistance of the aborigines, to whom I am indebted for all the information and discoveries I have made, so that I can but claim a small share of the credit of having, with my party, been successfully exploring the desert of Australia for eight months.

I can add but little to the description given by Sir Thomas Mitchell of the physical character of the country which I have traversed, and which he visited before me, but allow me at least to give you an outline of the most prominent features of the same.

Having passed the bold and steep Dividing Ranges at Lancefield, I descended into the rich and extensive grassy plains between the Campaspe and Loddon Rivers, which are strikingly similar to the Gawler Town plains, in South Australia, and which are destined at some future period to supply the Victorian market with fat cattle, when the benefits of irrigation are better understood by our colonists, and when, by means of a railway, access to Melbourne from the Murray District will be rendered easy.

Mount Hope and Mount Pyramid, characterised by their picturesque appearance, arising from enormous blocks of granite, towering in bold relief, one above the other out of the alluvial flats, will at some future day be the Madeira and Oporto of Victoria. No spot offered to my eye a finer prospect of success in wine growing in Victoria, than this small area of about 30,000 acres of splendid soil.

The remainder of the country in the neighbourhood of the Murray, consists of barren, stiff and firm clay flats of remarkable evenness, partly covered with box-trees or salsolae bushes, and in other parts with dense, impenetrable mallee scrub, easily distinguished at a great distance by its dirty looking, dark olive green leaves. Wherever the Mallee Scrub is met with, the soil is interspered with numerous nodules of limestone. The bright green of cypress forests, with the duller aspect of the oak, growing on sand hummocks interrupts the monotony of the box-tree flats. Now and then a cluster of Eucalypti growing along the banks of the Billibong, and ornamenting the banks of the slowly flowing Murray, occasionally relieve the weary traveller with their refreshing looks, and remind him, that ultimately the sheep and cattle of those regions will

have to make room for flourishing dairy stations, silk growing plantations and wine producing farms.

Peculiar looking dried up lakes of several miles, in diameter, in the neighbourhood of Lake Boga, and having their north-east shores considerably elevated in the form of an amphitheatre, above the remaining portion of the soil, extend between the Lachlan and the Darling, and sweep around Candilla Lake in the direction of Lake Torrens, of which they appear to be the ancient remains. Before the Murray and its tributaries were able to break through the limestone cliffs, near the overland corner, in longitude 140° and from the present channel of that river, a chain of high, picturesque, but barren sand hummocks, appear to have been formed, characterising the last violent struggle, which took place between a shallow sea and a large accumulation of sweet rainwater in the valley of the Murray, leaving on the one side now and then a fresh water lake, which by means of an open channel had communication with the newly formed River Murray, and on the other side now and then a concentrated saltwater lake, which, when dried up in summer, forms a crust of salt, covering its bottom, and which might tempt a skater to try his skill on the icy looking surface.

The Golgol Ranges exist only in name and the charming blue of a high mountainous district appears for the first time, after having passed Laidley Ponds, and even here at a great distance.

The Anna branch of the Darling has its junction at least fifty miles higher up the river, than is shown by Arrowsmith's map.

Extensive polygonum flats, and the absence of reed-beds, are characteristic of the banks of the Darling. I may also mention the remarkable fact of a strange disease, prevailing in that district on an extensive scale amongst the horses ; a kind of madness befalling these animals, which causes them to rise and plunge, rear high into the air, and in most instances finish by committing suicide, either by falling over the banks into the river or breaking their necks. The disease commences with a dullness; shortly afterwards the animal shies at any object, thereupon gets completely mad, and if it should recover, loses its former tone of voice, which changes into the cry of a mule ; while, all the qualities for which the horse is so justly esteemed are lost.

In latitude 32° south, a new vegetation begins. The Atriplex plains disappear, and zebra-like spotted wood and native orange trees grow in the richer soil. The whole country, as regards vegetation, is at least three months in advance of the southern portion.

Arrived at Mount Murchison, the last outpost of civilization,

the station there belonging to the brothers H. and B. Jamieson, I made an excursion of twenty-five miles to the north into the untrodden district of Eastern Australia. The panorama which there presented itself to my view from the summit of a high hill, called by me Mount Jamieson, was grand. The whole horizon was closed in with high blue mountains and picturesque hills, and my feelings then can only be understood by one, who himself has been on the verge of civilization, (in this case 700 miles from Melbourne), and gazed into the unknown wilds expanding before him.

III. Concerning the geological features of the country, I have but little information to give to some of you, as beyond the dividing ranges, with the exception of coarse grained granite at Mount Hope and Pyramid Hill, nothing peculiar exists on Victorian ground along the Lower Murray, but a pale yellow mallee sandstone, which is superseded from the junction of the Murrumbidgee to the Darling by brown colored ferruginous sandstone, and in the neighbourhood of the latter place by a dirty, yellow limestone, like sandstone, which appears to form the connecting link with the Murray limestone cliffs at Overland corner. I was not able to discover any fossils in Victoria, but thousands of the most beautiful in form are washed out of their original matrix on the South Australian side of the river. The hard outside crust of the fossils has resisted the action of the water and atmosphere to a surprising degree, and shows the most elegant forms imaginable in a perfect state of preservation.

Nothing remarkable besides this appeared to me, except at Mount Murchison the zig-zag, rugged, projecting rocks, apparently of the Silurian era. The quartzose sandstone, admirably adapted for millstones will at some future period supply this article to this colony. The natives obtain their supply in this respect from here, and within a radius of 600 miles get furnished from this district with stones for grinding various seeds. This is the district of which the natives gave Captain Sturt the account (generally believed to be fabulous) "That the sharply pointed stones and great rocks would fall down upon and crush visitors, and that even if they escaped from this danger, they would be killed by the heat, and that neither grass, water, nor wood are to be met with; that the wells are very deep, and that the cattle are unable to drink out of them, and, finally, that the water is salt, and that the natives drop down bundles of rushes to soak it up. This is no fiction but reality, described in the original language of the natives as relating to Mount Murchison.

IV. In the River Murray and also in Reedy Lake, I have found sweetwater sponges in great quantities. I am not aware

of the existence of sponges in sweetwater in other countries ; I therefore mention to you this fact.

I had opportunities of collecting a large number and variety of spiders, a beautiful species of spined lobster, and two other varieties of crawfish, and three kinds of shrimps—all found in the Murray. Concerning the insects collected, I need only say, there are 3000 delivered to the Museum, where all orders are represented which exist in the country.

Only two mussel shells were known to exist in the Murray. I have the pleasure of informing you that I have found eight bivalves, belonging to Unio family, and six univalves, belonging to Lymnea, Succinea, and Physa, of which three are viviperous. I have preserved a large number of them in spirits of wine, and they can be seen at the Museum.

There were only three kinds of fish known to exist in the Murray, and of which, Sir Thomas Mitchell gives good drawings. I beg to lay before you nineteen different forms of fish living in the waters of the Murray and Billibong.

FRESH WATER FISH, FROM THE MURRAY RIVER, IN VICTORIA.

DELIVERED BY W. BLANDOWSKI.

PLATE I.

Fig. 1. H

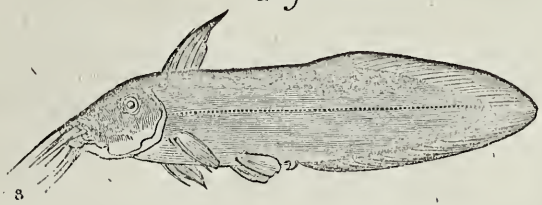

Fig. 2

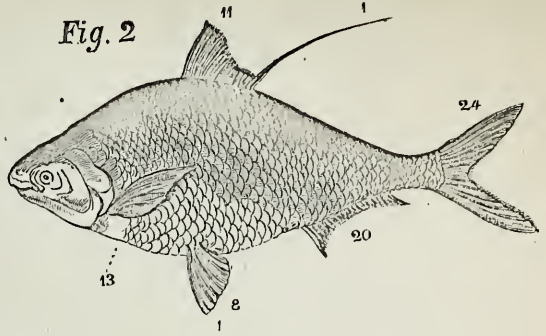

Fig. 3. C

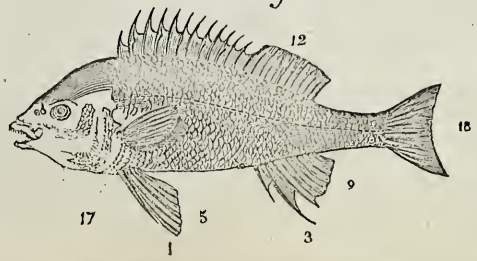

Fig. 4 B

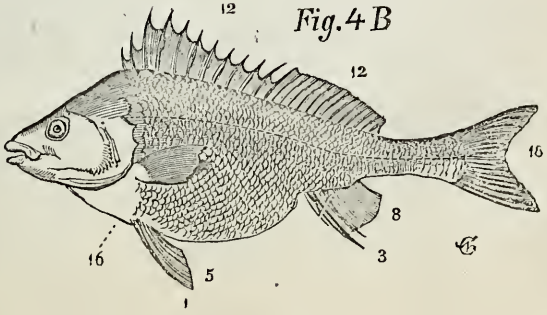

PLATE I., FIG. 1.—*Plotosus tandanus.* *(H.)*

Eel-fish or "Kenaru," of the Yarree Yarree.

An olive-green coloured fish, with eight long feelers round its mouth. Eyes yellow. An Asiatic form of fish, which lives here in the Murray and in Billibongs. Is very much esteemed by the natives as food, and prohibited to their young men. Swims with great rapidity, even in shallow water. Ploughs the water with its powerful dorsal fin, and is therefore easily recognised and speared by the natives. They often hurt their fingers on the sharp back fin, and then say it is a "saucy fellow." It is unquestionably the best eating fish in the Murray, and grows to the size of two feet, weighing from 7 to 8 lbs. It lives principally on very small shells, and muddy spots are its favorite places of abode. It is not scaled.

PLATE I., FIG. 2.—*Megalope Caillentassart.* *(D.)*

"Manur," of the Yarree Yarree.

A fish found in the neighbourhood of Boston. Is of a silvery colour, and has on the back, behind the dorsal fin, a very elongated and elastic backray. Leaps frequently out of the water, and is easily caught by its elongated ray in thin fine nets, laid by the natives horizontally on the water. The fish gets entangled in the twine, and cannot escape. Is most numerous in the Darling, but is also found above and below the junction of the Murray and Darling Rivers. In June and July it is considered a delicacy by the natives and forms their principal food during these two months. The young women are not permitted to eat them, from a belief, that if they did, all fish in the river would die; but in reality, because it is thought to be an aphrodisiac, this fish being very fat and nourishing. It is also placed on the top of graves, to point out the direction in which he lives, who caused the death of the inmate. Therefore, this fish is highly esteemed. It is remarkable that this fish contains an uncommon quantity of small soft bones. It grows only from 10 to 14 inches.

PLATE I., FIG. 3.—*Cernua Bidyana.* *(C.)*

"Baggack," of the Yarree Yarree.

Sir Thomas Mitchell has already given a good drawing of this fish. It grows to about 18 inches in length.

PLATE I., FIG. 4.—*Cernua Eadesii.* *(B.)*

"Buruitjall," of the Yarree Yarree.

A fish easily recognized by its low forehead, big belly and sharp spine.

PLATE II., FIG. 5.—*Cernua Nicholsonia.* *(T.)*

"Karpa," of the Yarree Yarree

Lives on crawfish. Fishes 3, 4 and 5 are all difficult to distinguish from each other. They live in the Murray and its Billybongs. Grows to the length of 14 inches.

PLATE II., FIG 6.—*Cernua Ifflaensis.* *(Q.)*

"Bipe Purritjall," of the Yarree Yarree.

Is a little fish from two to three inches in length, and only found in the waters of the Billybongs. Colour dirty greenish; irregular dotted lines running over the upper part of the body; body silvery.

PLATE II., FIG. 7.—*Cernua (?) Wilkiensis.* *(P.)*

"Mallupit," of the Yarree Yarree.

This fish is very small, and lives in the Billybongs.

PLATE II., FIG. 8.—*Kohna Mackennæ.* *(L.)*

"Kohn," of the Yarree Yarree.

A fine little fish, which seldom grows to the length of three inches.

PLATE II., FIG. 9.—*Turruitja Achenson.* *(M.)*

"Turruitje," of the Yarree Yarree.

Is found in the Murray and adjacent Billybongs.

PLATE II., FIG. 10.—*Jerrina Dobreensis.* *(K.)*

"Jerrin," of the Yarree Yarree.

This bright coloured fish soon attracts the attention of the little black children by its pinkish breast and dark greenish body, with twelve intense bluish stripes, running longitudinally along the body, commencing a little beyond the middle and pointing towards the tail. The dorsal and ventral fins are of a yellow colour. The tail is orange. This fish very seldom grows larger than five inches, and is roasted together with the other little fishes by the natives in the following manner:—They take a few hot stones and some clods of clay, throw in the whole lot of fishes, turn them round for a few minutes, then take out again the hot stones and eat the whole mess like "bubble and squeak" from a piece of bark, on which these little fishes have been previously prepared. The Billybongs are the principal abodes of this fish.

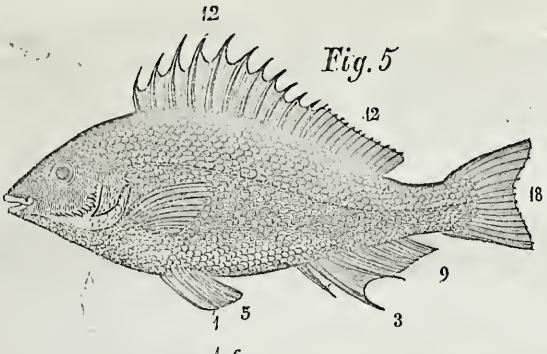
Fig. 5
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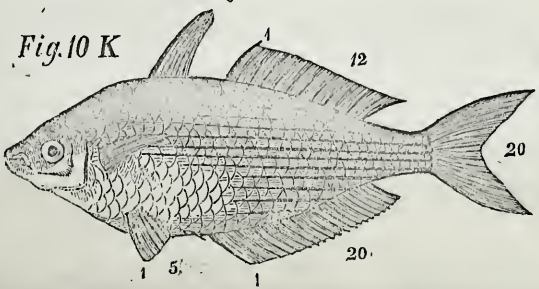
Fig. 10 K
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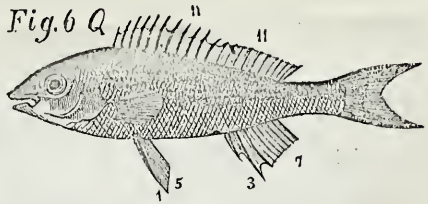
Fig. 6 Q
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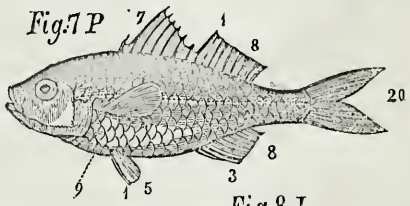
Fig. 7 P
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Fig. 8. L
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Fig. 9 M
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18

FRESH WATER FISH, FROM THE MURRAY RIVER, IN VICTORIA.

DELIVERED BY W. BLANDOWSKI.

PLATE III.

Fig. 11. E

Fig. 12.

Fig. 13. S

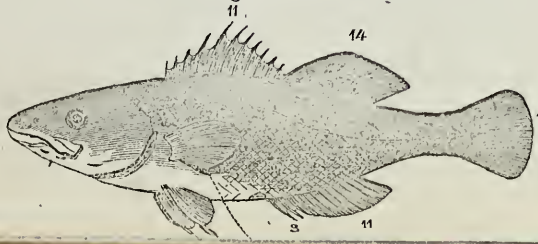

Fig. 14. J

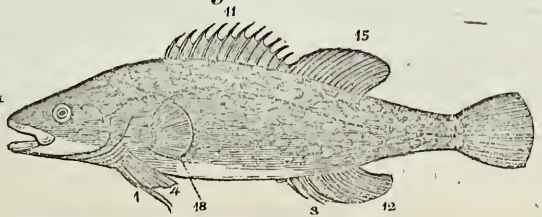

PLATE III., FIG. 11. *(E.)*

"Poke," of the Yarree Yarree.

This little spotted trout is a delicious eating fish, and is not only found in the Billybongs and the River Murray, but also observed by me in the Yarra Yarra, near Melbourne. It is nearly transparent, of a slightly greenish colour, with blackish spots of large size on the back, and of a smaller description on the belly. Becomes a fat, plump little fish, seldom larger than six or seven inches.

PLATE III., FIG. 12.—*Uteranka Irvingü.*

"Uterank," of the Yarree Yarree.

This long thin fish seldom grows larger than seven inches, and is caught by the boys in the Yarra Yarra, in great numbers. Is considered a very fine eating fish, but appears to be rare in the Murray, and only serves to support the fish drawn at figure 15, which principally feeds on it.

PLATE III., FIG. 13.—*Gristes Macquariensis. (S.)*

"Yaturr," of the Yarree Yarree.

Is of a dirty green colour and has less spots, than Gristes Peelü. In both the scales are small and covered by an epidermis. Both are characteristic forms of the Murray River and its tributaries, and the principal fishes on which the natives subsist during the greater part of the year. They grow from 36 to 40 inches in length. In winter, when the river overflows it banks, the natives spear them at night by firelight, while sleeping behind an old log; in the summer season, from January to June, when the river is low and the water clear, this fish sleeps in the river, behind a log or stone. The native, spear in hand, (now an iron rod of about six feet in length), dives, head foremost, to the bottom of the river, where the fish sleeps and there spears it, an exciting sport even to the white man.

PLATE III., FIG. 14.—*Gristes Peelü. (J.)*

"Barnta," of the Yarree Yarree.

This fish, as well as the preceding, No. 13, have both been already observed in America. I may as well allude here to Mr. Edward Wilson's experiment of transferring these fishes to the rivers joining the sea on the southern side of the range, and I believe them likely to prosper, if they find ample food in those rivers!

PLATE IV., FIG. 15.—*Tilka Wilsonia. (A.)*

A fish of middling size, grows from 14 to 18 inches; is finely scaled. Is known to the Gunbower natives as "Pollugunder," and to the Loddon tribe as "Birnnett." Lives in the Murray and Billybongs.

PLATE IV., FIG. 16.—*Collundera Mülleriana. (O.)*

"Collundera," of the Yarree Yarree.

This fish does not grow above three inches, and lives principally in the Billybongs. Is of an olive-green colour, has white eyes, and has large scales for its size.

PLATE IV., FIG. 17.

"Loetj," of the Yarree Yarree.

The smallest sized fish, which I have observed in the Australian waters. Lives in the Billybongs, and is only two inches in length and rarely grows larger.

PLATE IV., FIG. 18.—*(R.)*

Kurrina Macadamia.

A bluish-green small fish, with dark green stripes on the head, and spotted with darker dots, particularly visible on the tail and fins. Lives principally on little crawfishes. The "Koerin" or Kurrin," takes its abode in the hollows of the banks of the Billybongs, there watching for its prey.

PLATE IV. FIG. 19.—*(N.)*

Brosmius Bleasdalii.

A sliny, slippery fish. Lives in the mud. Is of a violet bluish colour on the belly. The whole upper surface is of a dirty olivish-green colour, with numerous irregular dark patches. Principally found in Billybongs, but also found by me in the Yarra Yarra River. The Yarree Yarree natives name it "Paltk." It grows to about seven inches in length.